REMARKS

In the Office Action, the Examiner indicated that claims 1 through 5 are pending in the application and the Examiner rejected all claims.

Claim Rejections, 35 U.S.C. §102(e)

At item 2 of the Office Action, the Examiner rejected claims 1-5 as being anticipated by U.S. Patent No. 6,377,934 to Chen et al.

The Present Invention

The present invention is a method and system for data mining and analysis in which an entire transaction, e.g., all of the purchased items in a particular market basket, is characterized according to predetermined attributes. For example, the transaction may be characterized as a "high margin transaction"; "perishable goods"; "entertainment-related luxury items", etc. In accordance with the present invention, these attributes are identified and an "imaginary item" representing each characteristic of the basket as a whole is included in the market basket data. When the market basket data is subjected to traditional association analysis, the imaginary items are included in the analysis and may be utilized to, for example, identify frequent item sets that are typically found in market basket groupings having the identified characteristics.

U.S. Patent No. 6,377,934 to Chen et al.

Chen teaches techniques for grouping data in a data warehouse: A method of creating a database for organizing information from one or more sources according to a data schema, such as a reverse star schema, which can be selected from a set of pre-defined data model templates. Chen also mentions that the method includes a step of defining entities for transactions and/or events and their attributes, to form a customized group of customer activity components that are relevant to a particular application. Events can be arranged into customer activity components. Components can be organized into one or more

customized groups. Chen further mentions that the method provides users with the capability to define application-specific entities in customer activity components, by, for example, selecting attributes from a predefined list of attributes or by defining their own. An embodiment according to the Chen invention can also provide analysis functions of database contents, such as market basket analysis for customer buying behavior.

Chen also discusses the embedding of metadata information into the generated code. Specifically, Chen discusses embedding metadata into generated code produced by the data warehouse builder; code produced for defining the database schema (to create tables to represent entities and relationships); code for moving data into the database; and code for moving data out of the database for analysis. Metadata, i.e., information about the data itself, such as data types, domain values, etc., are used to make this code generation possible. Chen teaches that metadata can be embedded in the generated code for moving data out for analysis. In other words, the code for producing the data for analysis contains information about the data they manipulate. In other words, Chen teaches the embedding of information about data into the code.

The Cited Prior Art Does Not Anticipate the Claimed Invention

The MPEP and case law provide the following definition of anticipation for the purposes of 35 U.S.C. '102:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP '2131 citing Verdegaal Bros. v. Union Oil Company of California, 814 F.2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987)

The Examiner Has Not Established a *prima facie* Case of Anticipation

The present invention focuses on improving the ability to research product dynamics (i.e., the correlation between items that are purchased during a single shopping experience). This is accomplished, in part, based on characterizing the overall properties of a particular

market basket and then "adding" an "item" to the market basket that supplies information regarding this characterization.

A primary point of divergence between the present invention and the prior art, including Chen, is the characterization of the particular market basket on an aggregate level and the creation and insertion of one or more "imaginary items" in the market basket data. The imaginary item(s) provides an analyst or analysis program with the ability to enhance the analysis of market basket groupings by engaging aggregate basket properties along with actual items and their properties in the results of the market basket analysis. Among other benefits, this allows the analyst to easily identify market baskets with similar characteristics so that they may later be analyzed in more detail to determine what product attributes result in a market basket having the characteristics identified by the imaginary item(s). This is a significant tool for the analyst that is not available in the prior art.

The creation and embedding of the imaginary item within the market basket data is clearly defined in claim 1

> "... for all market basket groupings which have been determined to display said characteristics, enhancing said aggregate sales data concerning each market basket grouping by embedding in said aggregate sales data an "imaginary item" for each characteristic(s) displayed by each market basket grouping."

The imaginary items are stored following the same data organization schema and in the same way as actual items in the market basket. The grouping of market basket data remains unchanged; additional "items" are simply inserted, with these items identifying characteristics of the overall basket.

Chen neither teaches nor suggests such a feature. Chen is concerned with the grouping of data within a database. The data can be grouped according to certain characteristics, and the attributes of the data can be used to create a model, which is used to organize the data in the database. Virtually all market basket analysis involves identification of purchase combinations that have a tendency to occur more frequently than other combinations. Applicant has cited such analysis in its description of the prior art in the present application, and the Chen reference recites the same well known market basket

analysis concepts.

Nothing in Chen even remotely suggests the analysis of data pertaining to all of the items in a market basket to characterize items, and then adding additional "items" to the market basket data so that, when analyzed, the characteristics of that market basket can be easily ascertained.

Since Chen contains no teaching of the creation and insertion of an "imaginary item" for each characteristic displayed by the aggregate market basket grouping, and since claim 1 specifically claims this feature, claim 1 and all claims depending therefrom patentably define over Chen.

Claims 2-5 depend from claim 1 and include additional novel limitations thereto and are thus in condition for allowance for the same reasons set forth above. These limitations include performing association analysis on the enhanced market basket grouping data (claim 2); processing association rules and frequent item sets developed during the association analysis (claim 3); inputting information about the merchandise in the market basket to a merchandise taxonomy to establish logical links to the data related to the market basket contents (claim 4); and using aggregate sales data that links the merchandise information of sold items in a market basket to all other items in the market basket (claim 5).

The Added Claims

Claims 6-15 have been added to recite the present invention in alternative form (claims 6-10 as a "computer program product" and claims 11-15 for a "system" for performing the method of the present invention). It is submitted that the addition of these claims will not require an additional search, as all of the additional claims are directed to performance of the method of claims 1-5.

Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims.

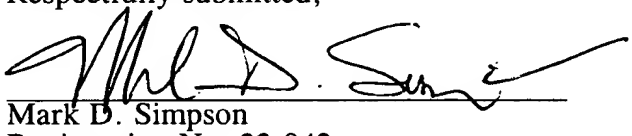
An early Notice of Allowance is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with Markings to Show Changes Made."

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0629.

Respectfully submitted,

August 7, 2002
Date



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Version with Markings to Show Changes Made

The following claims have been added.

--6. A computer program product recorded on computer readable medium for processing market research data including aggregate sales data concerning items grouped in a plurality of market baskets and sold during retail sales transactions of a retailer, comprising:

computer readable means for receiving analysis parameters from said retailer for use in analyzing said market research data;

computer readable means for receiving said aggregate sales data;

computer readable means for analyzing said aggregate sales data based on said market basket groupings and determining if any of said market basket groupings display characteristics identified by said analysis parameters; and

computer readable means for enhancing said aggregate sales data concerning each market basket grouping by embedding in said aggregate sales data an "imaginary item" for each characteristic(s) displayed by each market basket grouping, for all market basket groupings which have been determined to display said characteristics.

7. The computer program product as set forth in claim 6, further comprising:

computer readable means for performing association analysis on said enhanced market basket grouping data to generate association rules and frequent itemsets; and

computer readable means for displaying and archiving said association rules and frequent itemsets.

8. The computer program product as set forth in claim 7, further comprising:

computer readable means for processing said association rules and frequent itemsets to develop conclusions about said marketing research data.

9. The computer program product as set forth in claim 7, wherein said aggregate sales data comprises merchandise information, said merchandise information including:

an identification element identifying each sold item;

transactional information corresponding to each sold item; and

financial information corresponding to each sold item; and wherein said merchandise information is input to a merchandise taxonomy to establish logical links between said identification elements, said transactional information, and said financial information so that said merchandise information can be utilized for market basket analysis.

10. The computer program product as set forth in claim 9, wherein said aggregate sales data comprises computer readable means for linking the merchandise information of each sold item in a particular market basket to all other items in said particular market basket.

11. A system of processing market research data including aggregate sales data concerning items grouped in a plurality of market baskets and sold during retail sales transactions of a retailer, said system comprising:

means for receiving analysis parameters from said retailer for use in analyzing said market research data;

means for receiving said aggregate sales data;

means for analyzing said aggregate sales data based on said market basket groupings and determining if any of said market basket groupings display characteristics identified by said analysis parameters; and

means for enhancing said aggregate sales data concerning each market basket grouping by embedding in said aggregate sales data an "imaginary item" for each characteristic(s) displayed by each market basket grouping for all market basket groupings which have been determined to display said characteristics.

12. The system as set forth in claim 11, wherein said system further comprises:

means for performing association analysis on said enhanced market basket grouping data to generate association rules and frequent itemsets; and

means for displaying and archiving said association rules and frequent itemsets.

13. The system as set forth in claim 12, further comprising:

means for processing said association rules and frequent itemsets to develop conclusions about said marketing research data.

14. The system as set forth in claim 12, wherein said aggregate sales data comprises merchandise information, said merchandise information including:

an identification element identifying each sold item;

transactional information corresponding to each sold item; and

financial information corresponding to each sold item; and wherein said merchandise information is input to a merchandise taxonomy to establish logical links between said identification elements, said transactional information, and said financial information so that said merchandise information can be utilized for market basket analysis.

15. The system as set forth in claim 14, wherein said aggregate sales data comprises information linking the merchandise information of each sold item in a particular market basket to all other items in said particular market basket.--